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ABSTRACT

A self administered questionnaire was used to gather data for a study of nutrition knowledge and attitudes as they related to nutrition education sources and demographic and personal characteristics of 321 post partum patients. The major objective of the study was to determine whether a relationship existed between a woman's most important nutrition education source and either her nutrition knowledge or her nutrition attitudes. Findings indicated that previous nutrition education experiences were not significantly related to a woman's knowledge and attitudes. In contrast, socioeconomic status (calculated from educational level, annual income, and race) was found to be significantly related to both nutrition knowledge and nutrition attitudes, as measured in the study. (Author/GC)

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A STUDY OF NUTRITION EDUCATION'S ASSOCIATION WITH NUTRITION KNOWLEDGE AND ATTITUDES

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There are many health concerns today for which the solution lies not in acquisition of further medical or scientific knowledge, but in the application of already known facts. Nutrition is one of these concerns. Many of the reasons that people are not well nourished in the United States are related to the fact that some people do not or cannot follow recognized principles of good nutrition. While various solutions to nutrition problems have been proposed, the success of all of them is ultimately related to the individual's personal decisions about eating.

The importance of the individual's role in controlling his or her own nutrition has prompted many people to suggest nutrition education as a solution for dealing with nutrition problems. The significance of nutrition education as an intervention strategy has recently been highlighted by the passage of a national nutrition education bill.[1]

It was primarily to look at the relationship of certain types of nutrition education to both nutrition knowledge and nutrition attitudes that the present study was designed. In order to discover meaningful information about this relationship, however, it was essential that the relative importance of demographic factors also be examined. Various studies which have looked at the relationship of demographic factors to nutrition knowledge or attitudes have pointed to the importance of demographic factors. Eppright et al.,[2] Bass,[3] Lohse[4], Young, Berresford, and Walder,[5] Tifft and Stanton,[6] and Sims,[7] using different populations, all reported a relationship between

nutrition knowledge and certain socioeconomic status indicators. Studying nutriton attitudes Lohse[8] found no correlates among the deomgraphic variables surveyed, but Eppright et al.[9] found nutrition attitudes to be correlated with many of the same socioeconomic factors as nutrition knowledge.

Findings from correlational studies relating nutrition knowledge or attitudes to various types of nutrition education are conflicting. Schwartz[10] and Bass[11] found no significant relationships while Lohse[12] reported a relationship between certain types of nutrition education and both nutrition knowledge and attitudes. A study by Morse, Clayton, and Cosgrove, found mothers who had taken a nutrition course to have greater nutrition knowledge than mothers who had not,[13] and Werblow, Fox and Henneman report that women athletes with nutrition education in high school or college scored higher on nutrition knowledge and attitudes than women athletes without such nutrition education.[14] Schwartz and Barr found nutrition knowledge and attitudes of new mothers to be positively associated with prenatal classes and paperback "pocket" books as information sources but negatively related to doctors as a source of nutrition information.[15]

None of the studies reviewed attempted to assess nutrition education experiences while controlling for demographic factors. The present study analyzed nutrition education experience variables while controlling for demographic factor variables in an effort to provide better insight into the relationship between previous nutrition education and present nutrition knowledge and attitudes.

METHODS

The population selected for study was post partum patients hospitalized at two hospitals in Columbus, Ohio. The study sample consisted of 321 patients who delivered babies durin, the six weeks the survey was conducted.

The survey instrument consisted of three parts. Part I was a type of nutrition attitude test, an adapted form of an equal-interval instrument developed by Raymond J. Vincent.[16] It measured the importance the respondent attached to eating a balanced diet. The reliability coefficient, measured by the odd even split halves method with the study population was .743.

Part II, the 45 item adapted Osman Nutrition Information Test, measured the respondent's level of nutrition knowledge.[17] The reliability of the nutrition knowledge portion of the instrument with the study population was .92 according to the Kuder Richardson 21. Part III was designed by the investigater to gather necessary descriptive and demographic information such as nutrition education sources, attitude toward nutrition education, education level, age, marital status, race, trimester of prenatal care initiation, and income.

DESCRIPTIVE INFORMATION

The largest percentage of women, 28.7 per cent, was in the 22 to 25 year age bracket. Over 12 per cent was older than 29 years and 11.5 per cent was under 18 years old. The unmarried group comprised 22.5 per cent, the non-white group was 27.7 per cent, and the

percentage of respondents for whom a public assitance program financed their hospital costs was 21.9.

In order to find where the women in this sample had learned about nutrition, twenty choices were listed as possible sources of nutrition education. Each respondent was asked first to indicate all of the sources of nutrition education to which she had previously been exposed. The most prevalent source of nutrition education for this sample was "books, magazines, and pamphlets," followed by "senior high school," "junior high school," "elementary school," and "friends or relatives." Table 1 lists all sources, the number and percentages of respondents exposed to each source, and the rank order in terms of prevalence.

Considering the same twenty sources, each respondent was also asked to indicate which had been the most important for her. Results of responses to this second question are shown in Table 2. The top three "important" sources were the same as the three most prevalent sources, while the fourth was "friends or relatives," and the fifth was "dietitian or nutritionist." Responses to the two questions about nutrition education sources indicated that the most prevalent sources tended to be those perceived as the most important for many respondents.

The group's mean score on the nutrition knowledge instrument was 26.04 of a possible 45. Scores ranged from a perfect 45, achieved by one individual to a low of 5, also achieved by only one individual. Scores on the nutrition attitudes instrument indicated a fairly high importance attached to eating a balanced diet. Attitude scores

ranged from 25 to 44. The mean, 38.77, represented a point closest to the statement "Eating a balanced diet should be appreciated by more people." This was definitely more positive than a neutral mid-point statement such as "I have no feeling about eating a balanced diet."

FINDINGS

The major questions of this study dealt with whether a significant relationship existed between a woman's most important nutrition education source and either her nutrition knowledge or her nutrition attitudes. Since previous studies have indicated the presence of a relationship between socio economic type factors and both nutrition knowledge and nutrition attitudes, analysis of variance was used to help control for socioeconomic status in order to permit searching for a possibly less dramatic relationship between nutrition education and nutrition knowledge and attitudes.

For purposes of analysis the sample was divided into six subgroups, according to socioeconomic status and nutrition education sources. The first division separated respondents into three approximately equal-sized groups on the basis of Green's SES (socioeconomic status) index.[18] This index provides formulas and a weighting system so that each individual can be assigned one composite SES score based on her education level, her income, and her race. The score represents an SES standing relative to other individuals in the group so that all respondents can be placed on a socioeconomic status continuum.

Within each of the three SES groups, the respondents were further divided into subgroups according to the source of nutrition education

they listed as having been their most important. Sources were categorized into two groups or types, formal and informal. Formal sources were formal school sources, including elementary school, junior high school, senior high school, college nutrition course, or other college course. The number of respondents whose most important nutrition education source was one of those categorized in the formal group was 132. The remaining 189 respondents' most important nutrition information source was one categorized as informal. Informal sources included all the following choices: 4-H, Girl Scouts or Campfire Girls, FHA, adult education programs or activities, other class or group work, doctor, nurse, dentist, dietitian or nutritionist, other health professional, books, magazines, or pamphlets, radio or television, newspapers, friends or relatives, and other.

Nutrition Knowledge - Analysis of variance suggested a relationship between nutrition knowledge and SES, as indicated in significant differences (at the .01 level) found among the mean nutrition knowledge scores of the three SES groups. Of a possible 45 points nutrition knowledge scores for the low, medium, and high SES groups were 19.55, 26.16, and 33.64, respectively. Subgroup scores within the formal and informal groups are shown in Table 3.

Evidence of any relationships between nutrition knowledge scores and type of nutrition education was lacking. Examination of the mean nutrition scores of the formal nutrition education group versus the informal nutrition education group without regard for SES showed only a non-significant difference. Likewise, analysis indicated no

significant differences in nutrition knowledge scores for the formal and informal groups within each SES group.

Nutrition Attitudes - Analysis of variance findings for nutrition attitudes were similar to those for nutrition knowledge. A significant difference (at the .01 level) between the mean attitude scores for the three SES groups was found. (See Table 3). Those who had higher SES scores also tended to have more positive attitudes toward nutrition.

However, a relationship between nutrition attitudes and previous exposure to formal versus informal nutrition education was not found. Further, within each SES level the mean nutrition attitude score for those whose most important nutrition education experience had occurred from a formal source did not differ significantly from those whose most important nutrition education experience had occurred from an informal source.

DISCUSSION AND CONCLUSIONS

Analysis of variance findings indicate that nutrition education sources, formal or informal, were not significantly related to nutrition knowledge and nutrition attitudes as measured and defined by the instruments used in this study. In contrast, the combination variable SES, calculated from education level, annual income, and race, was significantly related to dramatic differences in both nutrition knowledge scores and nutrition attitude scores. Unfortuantely the factors which contribute to SES and therefore relate to nutrition knowledge and attitudes are not generally susceptible to control by educators.

The present study does little to rebutt the stern remarks of Mayer, that "Previous efforts in nutrition education have been largely ineffective, and most Americans are abysmally ignorant about the most elementary principles of applied nutrition."[19] Mayer suggests that we need to find new and more effective ways to educate people about food and nutrition. There is a clear challenge to those concerned about the nutrition knowledge, attitudes, behavior, and status of Americans to continue to study ways to use more productively the potential that nutrition education holds.

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Table 1: Prevalence of nutrition education sources

source	number exposed	per cent	rank order
elementary school	183	57.00	4
junior high school	224	69.78	3
senior high school	233	72.59	2
college nutrition course	35	10.90	16
other college course	38	11.84	15
4-H	34	10.59	17
Girl Scouts or Campfire Girls	93	28.97	9
FHA	53	16.51	14
adult education classes or activities	27	8.41	19
other class or group	69	21.50	12
doctor	177	55.14	6
nurse	82	25.55	11
dentist	67	20.87	13
dietitian or nutritionist	85	26.48	10
other health professional	32	9.97	18
books, magazines, pamphlets	266	82.87	1
radio or television	148	46.11	7
newspapers	112	34.89	8
friends or relatives	178	55.45	5
other	11	3.43	20

Table 2: Nutrition education sources considered most important

source	number	per cent	rank order
elementary school	13	4.0	7
junior high school	38	11.8	3
senior high school	67	20.9	2
college nutrition course	11	3.4	8
other college course	4	1.2	11
4-H	1	0.3	14
Girl Scouts or Campfire Girls	1	0.3	14
FHA	11	3.4	8
adult education classes or activities	6	1.9	9
other class or group	6	1.9	9
doctor	14	4.4	6
nurse	4	1.2	11
dentist	2	0.6	13
dietitian or nutritionist	22	6.9	5
other health professional	1	0.3	14
books, magazines, pamphlets	83	25.9	1
radio or television	3	0.9	12
friends or relatives	29	9.0	4
other	5	1.6	10

Table 3: Mean scores by subgroup

type of nutrition education	low SES	medium SES	high SES
	nutrition knowledge scores		
formal	18.98	24.46	33.52
informal	20.11	26.86	33.75
	nutrition attitude scores		
formal	37.70	38.94	40.10
informal	37.03	38.81	40.09